# Patients with hidradenitis suppurativa may suffer from neuropathic pain : A Finnish multicenter study

Huilaja, Laura

2020-05

Huilaja , L , Hirvonen , M J , Lipitsä , T , Vihervaara , A , Harvima , R , Sintonen , H , Kouri , J P , Ranta , M & Pasternack , R 2020 , ' Patients with hidradenitis suppurativa may suffer from neuropathic pain : A Finnish multicenter study ' , Journal of the American Academy of Dermatology , vol. 82 , no. 5 , pp. 1232-1234 . https://doi.org/10.1016/j.jaad.2019.11.016

http://hdl.handle.net/10138/321392
https://doi.org/10.1016/j.jaad.2019.11.016

# Patients with hidradenitis suppurativa may suffer from neuropathic pain: A Finnish multicenter study

Laura Huilaja, MD, PhD, Mirkka J. Hirvonen, PhD, Tiina Lipitsä, MD, Armi Vihervaara, MD, Rauno Harvima, MD, PhD, DSc, Harri Sintonen, PhD, Jukka Pekka Kouri, MD, Martta Ranta, MSc, Rafael Pasternack, MD, PhD

PII: S0190-9622(19)33106-8

DOI: https://doi.org/10.1016/j.jaad.2019.11.016

Reference: YMJD 13998

To appear in: *Journal of the American Academy of Dermatology*

Received Date: 12 June 2019

Revised Date: 1 November 2019

Accepted Date: 4 November 2019

Please cite this article as: Huilaja L, Hirvonen MJ, Lipitsä T, Vihervaara A, Harvima R, Sintonen H, Kouri JP, Ranta M, Pasternack R, Patients with hidradenitis suppurativa may suffer from neuropathic pain: A Finnish multicenter study, *Journal of the American Academy of Dermatology* (2019), doi: https://doi.org/10.1016/j.jaad.2019.11.016.

**Article type:** Letter to the Editor (JAAD-D-19-01286)

**Title: Patients with hidradenitis suppurativa may suffer from neuropathic pain: A Finnish multicenter study**

**Short title:** Pain in hidradenitis suppurativa

Laura Huilaja,[1] MD, PhD, Mirkka J. Hirvonen,[2] PhD, Tiina Lipitsä,[3] MD, Armi Vihervaara,[4] MD, Rauno Harvima,[3] MD, PhD, DSc, Harri Sintonen,[5] PhD, Jukka Pekka Kouri,[6] MD, Martta Ranta,[2] MSc, Rafael Pasternack,[7] MD, PhD

[1]PEDEGO Research Unit, University of Oulu; Department of Dermatology and Medical Research Center Oulu, Oulu University Hospital, Oulu, Finland

[2]AbbVie Oy, Espoo, Finland

[3]Department of Dermatology, Kuopio University Hospital and University of Eastern Finland, Kuopio, Finland

[4]Department of Dermatology, Turku University Hospital, Turku, Finland

[5]Department of Public Health, University of Helsinki, Helsinki, Finland

[6]Orton, Helsinki, Finland

[7]Department of Dermatology, Tampere University Hospital and Tampere University, Tampere, Finland

**Corresponding author:**

Laura Huilaja, Department of Dermatology, University of Oulu

Aapistie 5A, FIN-90029 Oulu, Finland; laura.huilaja@oulu.fi



**IRB approval status:** This study was approved by the Ethics Committee of Tampere University Hospital (R16017/2016)

**Word count:** 499/500

**Figures:** 1

**Tables:** 1

**Number of references:** 5

**List of attachments:** Additional material submitted as e-material (available at DOI: 10.17632/rrw9wmmnyb.2)

**Funding Sources**: The design, study conduct, and financial support for the study were provided by AbbVie. AbbVie participated in the interpretation of data, review, and approval of the publication.

**Key words:** acne inversa, hidradenitis suppurativa, pain, quality of life

Patients with hidradenitis suppurativa (HS) have a diminished quality of life (QoL), and pain being a major contributor to poor QoL[1, 2]. A recent study reported that pain was the only contributor for decreased QoL if the severity of disease was excluded[3]. Despite the immense impact of pain in patients with HS, there is lack of studies that more closely analyze the pain in these patients.

This multicenter study was conducted in Finland. Patients who were diagnosed with HS at least 6 months prior to the study period were retrospectively identified. Pain intensity and type were evaluated during the study visit using the visual analog scale (VAS) and painDETECT. The dermatological life quality index (DLQI) questionnaire and Beck's depression inventory (BDI) were used to evaluate the patients' QoL and the severity of depression. Methods are described in detail in Additional materials.

92 patients were included in the study. Patient characteristics are presented in Table S1. In painDETECT, 31.5% of patients were defined as having suspicion of neuropathic pain (NeP, 'NeP positive'), 41.3% as having no NeP('NeP negative'), and 27.2% were classified as having unclear results. (Table 1) Most patients reporting moderate to severe pain by VAS were also "'NeP positive' (Table 1). The percentage of patients in different pain groups stratified by disease severity is described in Table 1.

Patients reporting NeP had more psychiatric comorbidities (44.8%, n=13/29), such as depression and sleep disorders, compared with patients in the 'pain negative' (23.7%, n=9/38) or 'pain unclear' (24.0%, n=6/25) groups, but this finding was not statistically significant. No other differences were found between these groups in comorbidities. NeP negative group used less pain medication (Table S2).

DLQI and BDI scores were significantly lower in 'NeP negative' group compared to other painDETECT groups (Table 1). Of the 92 patients, 49 reported severe impairment in QoL, depression, or NeP (Figure 1).

Despite the overall mild pain level reported by the HS patients, one third of our patients were found to be ' NeP positive'' using the PainDETECT-tool, which suggests they possibly suffer from NeP. In addition, many were classified as "unclear", which may reflect the view that nociceptive and neuropathic pain could be seen as different points of the same continuum rather than different entities[4]. Anxiety and depression are known to be associated with both chronic pain and HS[5]. Although we found no differences in the diagnosed somatic comorbidities between painDETECT groups, a significantly higher BDI scores were seen among 'NeP positive' patients. When the coexistence of NeP and depression were analyzed in our patients, only slightly more than half of the patients with indicators of depression had suspicion of comorbid NeP (Figure 1). Our results further strengthen the findings that patients with HS suffer from pain and indicate that this HS-related pain may have elements of NeP. It is important that dermatologists assess the pain in patients with HS regularly and consult with other pain specialists to comprehensively treat their pain. Further studies are needed to analyze NeP in dermatological conditions.

**Acknowledgments**

The authors wish to thank all of the study investigators and study nurses, including Mari Grönroos, MD, PhD, and Ulla Oesch-Lääveri, RN (Department of Dermatology, Päijät-Häme Social and Health Care Group, Lahti, Finland), Leena Koulu, MD, PhD (Department of Dermatology, Turku University Hospital and University of Turku, Turku, Finland), and Tiina Kallio, RN (Department of Dermatology, Tampere University Hospital, Tampere, Finland), for their efforts in conducting the study, as well as all of the patients who participated in the study. Martina Serlachius, PhD (AbbVie Oy, Espoo, Finland), is acknowledged for her valuable input in the study design and study initiation. Teppo Huttunen and Aki Linden from 4Pharma are acknowledged for conducting the statistical analyses funded by AbbVie.

**Conflicts of interest**

Dr Huilaja has received educational grants from CSLBehring, Shire, Janssen-Cilag, Novartis, AbbVie, and LeoPharma; honoraria from Novartis, Sanofi Genzyme, and UCB Pharma for consulting and/or speaking; and is an investigator for AbbVie.

Dr Tiina Lipitsä has received educational grants from AbbVie and is an investigator for AbbVie.

Dr Rauno Harvima has received educational grants from AbbVie.

Dr Armi Vihervaara has received educational grants from AbbVie, Jansen, Novartis, and Celgene.

Dr Rafael Pasternack has received educational grants from AbbVie, Janssen, Leo pharma, Novartis, Pfizer and Sanofi Gentzyme; honoraria from AbbVie, Galenica, Eli Lilly, Janssen, Novartis, Sanofi Genzyme for consulting and/or speaking; participated in clinical studies sponsored by AbbVie, Novartis, Eli Lilly and Regeneron, and is an investigator for AbbVie.

Harri Sintonen has no conflicts of interest.

Dr Jukka Pekka Kouri has received educational grants from Pfizer.

Martta Ranta and Mirkka Hirvonen are employees of AbbVie and may or may not own AbbVie stock.

**REFERENCES**

1. von der Werth, J M, Jemec GB. Morbidity in patients with hidradenitis suppurativa. Br J Dermatol. 2001;144(4):809-813.

2. Onderdijk AJ, van der Zee, H H, Esmann S, et al. Depression in patients with hidradenitis suppurativa. J Eur Acad Dermatol Venereol. 2013;27(4):473-478.

3. Matusiak L, Szczech J, Kaaz K, Lelonek E, Szepietowski JC. Clinical characteristics of pruritus and pain in patients with hidradenitis suppurativa. Acta Derm Venereol. 2018;98(2):191-194.

4. Cohen SP, Mao J. Neuropathic pain: Mechanisms and their clinical implications. BMJ. 2014;348:f7656.

5. Huilaja L, Tiri H, Jokelainen J, Timonen M, Tasanen K. Patients with hidradenitis suppurativa have a high psychiatric disease burden: A finnish nationwide registry study. J Invest Dermatol. 2018;138(1):46-51.

**Abbreviations**

BDI: Beck Depression Inventory

DLQI: Dermatology Life Quality Index

HS: hidradenitis suppurativa

IHS4: International Hidradenitis Suppurativa Severity Score System

NeP: neuropathic pain

QoL: quality of life

VAS: visual analog scale

**Table 1. Distribution of Patients in Pain-VAS and PainDETECT Groups by Gender, Hurley Stage, and IHS4 Severity, BDI and DLQI Score. Distribution of Patients in PainDETECT Groups by Reported Pain-VAS. Mean scores (range) of DLQI and BDI in different pain-VAS and painDETECT groups.**

| | Pain-VAS | | | | PainDETECT | | | |
|---|---|---|---|---|---|---|---|---|
| | No Pain (0–4 mm) | Mild Pain (5–44 mm) | Moderate to Severe Pain (45–100 mm) | p-value | Pain Negative (0–12) | Unclear (13–18) | Pain Positive (19–38) | p-value |
| Total, n(%) | 34 (37.0) | 42 (45.7) | 16 (17.4) | | 38 (41.3) | 25 (27.2) | 29 (31.5) | |
| Males | 16 (39.0) | 18 (43.9) | 7 (17.1) | | 17 (41.5) | 13 (31.7) | 11 (26.8) | |
| Females | 18 (35.3) | 24 (47.1) | 9 (17.6) | 0.9326 | 21 (41.2) | 12 (23.5) | 18 (35.3) | 0.5838 |
| Hurley Stage, n(%) | | | | | | | | |
| I | 9 (56.3) | 6 (37.5) | 1 (6.3) | | 9 (56.3) | 5 (31.2) | 2 (12.5) | |
| II | 20 (32.3) | 30 (48.4) | 12 (19.4) | | 23 (37.1) | 17 (27.4) | 22 (35.5) | |
| III | 5 (35.7) | 6 (42.9) | 3 (21.4) | 0.4399 | 6 (42.9) | 3 (21.4) | 5 (35.7) | 0.4581 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| IHS4, n(%) | | | | | | | | |
| Mild | 20 (55.6) | 13 (36.1) | 3 (8.3) | | 19 (52.8) | 9 (25.0) | 8 (22.2) | |
| Moderate | 10 (29.4) | 18 (52.9) | 6 (17.6) | | 13 (38.2) | 6 (17.7) | 15 (44.1) | |
| Severe | 4 (18.2) | 11 (50.0) | 7 (31.8) | 0.0212 | 6 (27.3) | 10 (45.5) | 6 (27.7) | 0.0610 |
| BDI Score, n(%) | | | | | | | | |
| 0–12 | 27 (41.5) | 29 (44.6) | 9 (13.9) | | 30 (46.1) | 20 (30.8) | 15 (23.1) | |
| 13–18 | 4 (26.7) | 7 (46.6) | 4 (26.7) | | 7 (46.6) | 4 (26.7) | 4 (26.7) | |
| 19–63 | 3 (25.0) | 6 (50.0) | 3 (25.0) | 0.5674 | 1 (8.3) | 1 (8.3) | 10 (83.4) | 0.0017 |
| Psychiatric comorbidity, n(%) | | | | | 9 (23.7) | 6 (24.0) | 13 (44.8) | 0.1259 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Pain-VAS, n(%) | | | | | | | | |
| No pain (0–4 mm) | | | | | 20 (58.8) | 9 (26.5) | 5 (14.7) | |
| Mild (5–44 mm) | | | | | 17 (40.5) | 12 (28.6) | 13 (31.0) | |
| Moderate to severe (45–100 mm) | | | | | 1 (6.3) | 4 (25.0) | 11 (68.7) | 0.0016 |
| DLQI, mean (range) | 3.03 (0-9) | 8.76 (0-23) | 13.69 (4-29) | <0.001* | 4.53 (0-16) | 8.84 (1-23) | 10.55 (0-29) | 0.0001* |
| BDI, mean (range) | 6.68 (0-4.0) | 9.26 (0-30) | 13.06 (1-32) | 0.0198* | 6.84 (0-20) | 7.68 (0-19) | 12.86 (0-32) | 0.0030* |

BDI, Becks Depression Inventory ; DLQI, Dermatology Life Quality Index; ; IHS4, International Hidradenitis Suppurativa Severity Score System; pain-VAS, pain visual analog scale. Chi-Square test or ANOVA (*) used for statistical analyses.

**Fig 1.** Number of patients with severe impairment in quality of life (DLQI >10), depression (BDI>12), or neuropathic pain (painDETECT >18). Forty-nine of 92 patients reported above indicated changes in more than one of the parameters, and indicated changes in all of the 3 parameters were present in in one-fifth (n=9) of these patients. BDI, Beck Depression Inventory; DLQI, Dermatology Life Quality Index.